**ENCORE Data Distribution
Services (DDS) Guide – Overview**

Version 2.2
February 2024

Reasonable measures are taken by OCC to ensure the accuracy of the information it distributes in its DDS program. This information is produced from data received from a number of different sources, which are believed to be reliable. However, due to the number of sources for such data, the possibility of human error, and the risks inherent in electronic distribution, there may be omissions or inaccuracies in such information and delays or interruptions in providing it. Accordingly, OCC disclaims all express or implied warranties with respect to the information distributed in its DDS program, including any warranty of merchantability or fitness for a particular purpose. Further, information sent on a real time basis should not be considered final until OCC issues an end of day message advising no additional transmissions will be made on a particular business day.

Contents

Document Organization

This document is one of a set of three intended to provide a detailed description of all aspects of the OCC Data Distribution Services (DDS) system:

Part One: *ENCORE DDS Guide – Overview*. This section is intended for a reader that needs to understand the DDS system design concepts and data delivery services.

Part Two: *ENCORE DDS Guide – Developer Reference I – Non-Proprietary Transmissions*. This section is a non-proprietary transmission mapping reference for FIXML developers. This part of the guide includes FIXML elements, transmission layouts, message structures, and sample messages.

Part Three: *ENCORE DDS Guide – Developer Reference II – Proprietary Transmissions*. This section is a proprietary transmission mapping reference for FIXML developers. This part of the guide includes FIXML elements, transmission layouts, message structures, and sample messages.

Glossary of Terms

You should be familiar with the following terms prior to reading this guide.

Batch – In a computer, a batch job is a program that is assigned to the computer to run without further user interaction. In larger commercial computers or servers, batch jobs are usually initiated by a system user. Some are defined to run automatically at a certain time.

DDS (Data Distribution Services) – The DDS system supports both batch and real time data delivery and utilizes the FIXML data formatting standard.

ENCORE – The clearing system at OCC.

Event Driven Processing – A business event is a meaningful change in the state of the enterprise, such as the opening of a new customer account, clearing a trade, or the matching of a transfer. Event-driven processing is system behavior that is initiated by these business events rather than system events, such as time-based scheduling. Event-driven systems possess the following attributes: 1) Individual treatment of transactions; 2) Push delivery systems; and 3) Electronic notification.

FIXML (Financial Information eXchange Markup Language) – The XML derived grammar of the FIX protocol. A FIXML implementation includes message format validation, a clean, expressive structure, and leverages existing standards. The standard provides the ability to embed FIXML messages within traditional FIX headers and trailers.

Messaging – There are two major messaging server models: the point-to-point model and the publish/subscribe model. Messaging allows programs to share common message-handling code, to isolate resources and interdependencies, and to easily handle an increase in message volume. Messaging also makes it easier for programs to communicate across different programming environments (languages, compilers, and operating systems) since the only thing that each environment needs to understand is the common messaging format and protocol.

Package – Collection of DDS transmissions that are grouped together based on selections made when the subscription was created.

Pull Delivery Model – In a pull information delivery model, the observer (or client) requests information from the information owner. An example of this model is the download of a document from a website.

Push Delivery Model – In a push information delivery model, the information owner distributes the data to the observer as it deems appropriate. An example of this model is the sending and delivery of an email message.

Real Time – A level of computer responsiveness that a user senses as sufficiently immediate or that enables the computer to keep up with some external process (for example, to present trade data as trades are executed and cleared.

Recipient – The entity (Clearing Member Organization, Exchange, Regulatory Agency or Service Bureau) that owns the systems where DDS delivers data for processing or retransmission.

STP (Straight-Through-Processing) – The seamless integration of systems and processes to automate the trade process from end-to-end--trade execution, confirmation and settlement-- without the need for manual intervention or the re-keying of data.

Subscriber – The entity (a Clearing Member Organization, Exchange, or Regulatory Agency) that requests a package of transmissions and owns the data that is transmitted to recipients.

Subscription – A grouping of accounts owned by the subscriber, used to separate and organize proprietary data.

XML (eXtensible Markup Language) – A simple and flexible text format derived from SGML (ISO 8879). Originally designed to meet the challenges of large-scale electronic publishing, XML also plays an important role in the exchange of a wide variety of data on the web and elsewhere. Special purpose XML languages and standards are commonly developed, with several hundred already adopted since XML 1.0 was released in February 1998.

DDS Subscription Concepts

Subscribers, Recipients, and Packages

A subscriber represents the entity (clearing member, exchange, regulatory agency) that is the final beneficiary of DDS data.

A recipient represents the entity (clearing member, exchange, regulatory agency or service bureau) that owns the systems where DDS data is delivered for processing or retransmission.

The DDS system provides various options for setting up subscriber and recipient profiles:

- An entity can act as a subscriber and recipient at the same time.
- A subscriber can have its data distributed to one or more recipients.
- A recipient can receive data for multiple subscribers.

OCC Member Services maintains subscribers, subscriptions, recipients, and packages at the request of organizations subscribing to or receiving DDS transmissions.

For organizations that want to receive proprietary data from the DDS system, a minimum of one subscription needs to be defined. For Clearing Members that require the separation of data files between groups of accounts, a separate subscription is created for each group of accounts. Security follows the same data-level security protocols that are applied to user accounts in the ENCORE system.

Once a subscription is created, the DDS transmissions that will be received for that subscription are defined. Organizations can bundle one or more transmissions as a package, such as bundling Exercise and Assignment transmissions in an E&A Package, or bundling Prices, Security List and Security Definition transmissions in a Master File Package.

Packages are then assigned one or more recipient destinations. A recipient could be the same organization that subscribes to the data service or a different entity (such as a service bureau). A recipient destination can be a batch file to be pulled by a recipient's data center or a message queue where messages are delivered to the recipient in a real time mode. Although all transmission types are available in batch mode, not all are available in a real time mode.

Packages to be pulled in batch mode are available in their entirety when OCC processes the last DDS transmission in a package. OCC sends messages in real time as soon as the individual messages are generated within the ENCORE system.

For assistance, please contact your Member Services representative or the OCC Help Desk at one of the following:

- 800-621-6072 or 800-544-6091 (U.S.)
- 800-424-7320 (Canada)
- memberservices@theocc.com

Real Time Start of Day and End of Day Messages

A start of day (SOD) message is available to all users who subscribe to real time DDS messages. The DDS system transmits the SOD message to indicate that a new daily cycle has begun. OCC sends the message only once in any one cycle.

The DDS system transmits an end-of-day (EOD) message for all transmissions that can be delivered in a real time mode (via MQ). An EOD message is sent for all messages associated with a specific transmission when the transmission is complete. The EOD message:

- Indicates that no more messages will be sent for the transmission associated with the EOD message.
- Provides a total count of messages for the transmission associated with the EOD message for the given cycle.

EOD messages are delivered only to those organizations that subscribe to the data in real time mode.

A sample EOD message appears below:

```
<FIXML … >
<DDSEODMessage
     BizDt="2005-01-09"
     MsgTypeCode="TRADE"
     SchemaVer="FIX 4.4"
     TransType="TRADES"
     TransSubType="MATCHED"
     TransProductSet="OPTN"
     FinalizationCycle="ENCORE Equity Index Finalization"
     NoMessagesSent="177966" />
</FIXML>
```

The combination of the MsgTypeCode, SchemaVer, TransType, TransSubType, TransProdSet and FinalizationCycle values uniquely identifies the transmission associated with the EOD message. The NoMessageSent field represents the number of messages sent as part of the transmission associated with the EOD message.

The DDS EOD message has a proprietary content and format and will not be proposed as an addition to the FIX Protocol Standard due to its unique functionality for OCC purposes. EOD messages contain detailed content pertaining to the related transmission.

Data Delivery Processes

This section explains DDS delivery batch pull and real time push data flows.

Batch Pull Data Flow

OCC offers a batch pull data delivery service. In this scenario, OCC publishes the recipient's data to a secure data storage device and the recipient's client system initiates the data transfer. Figure 1 illustrates the batch pull delivery model.

If the requested data files have been published, OCC fulfills the request. If the requested data files are not yet published, the firm will get an error message when trying to pull the file.

The hardware and software requirements for the client system in the batch pull scenario are discussed in the subsequent section.

Figure 1 – Batch Pull Delivery Model Interactions and Confirmations

Real Time Push Data Flow

The DDS system provides transaction-based records (trades, post trades, and so on) in a real time environment. For example, as a real time trade is validated, the DDS system sends an output message to real time subscribers. Figure 2 illustrates the real time data delivery model.

To enable the delivery of these real time messages, OCC uses a proven infrastructure that offers native data security, guaranteed delivery, and high throughput capacity. The hardware and software requirements for the client system in this scenario are discussed in the subsequent section.

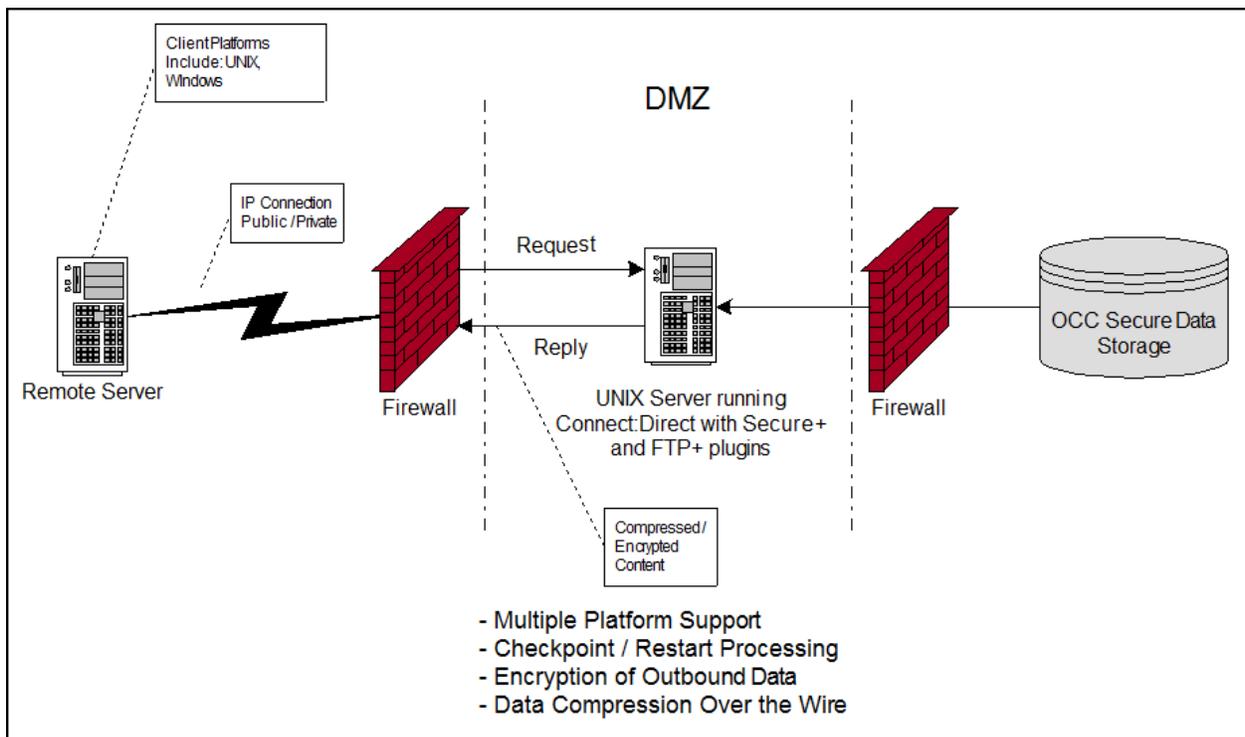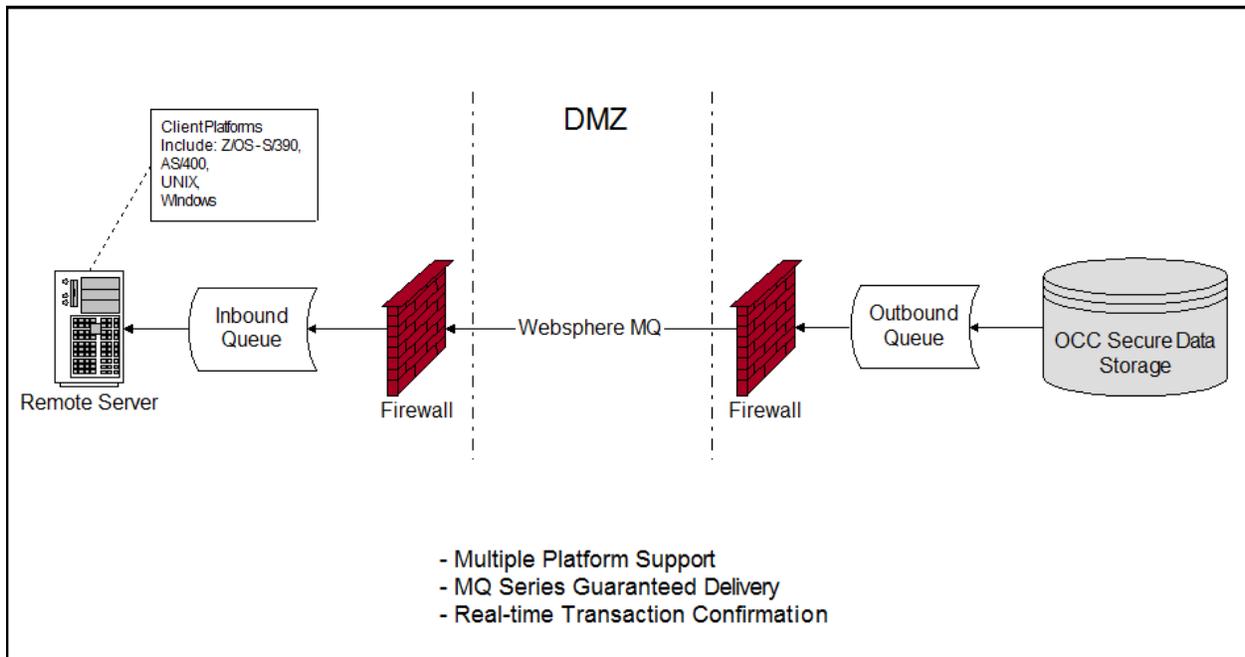Figure 2 – Real Time Data Delivery Model Interactions and Confirmations

Hardware and Software Requirements

This section explains the hardware and software required for receiving DDS transmissions.

Hardware

OCC supports both private line and Internet Protocol (IP) connection options for data delivery. OCC encrypts and compresses the data.

Software for Batch Pull File Delivery

Organizations use a Secure File Transfer Protocol (SFTP) infrastructure to pull batch data service files from OCC servers. SFTP allows for secure, encrypted, compressible file transfers over any reliable network.

The OCC SFTP infrastructure supports any SSH v3 compliant SFTP client on any UNIX or Windows platform. Most modern UNIX and Linux operating systems come pre-installed with the OpenSSH packages which include the SFTP client. Customers are responsible for acquiring the SFTP client of their choice.

In order to authenticate to the OCC SFTP server, each client firm provides an SSH public key that is paired to an SSH private key to be used for the connection. OCC also issues a user ID during the SFTP setup process.

Software for Real Time Push Messaging

OCC uses a real time messaging solution based on the IBM MQ product suite. To enable real time messaging, organizations must possess an MQ license and define and configure an MQ channel.

If an organization chooses not to use MQ, all requested data is still available in the form of file-based transmissions at the end of each processing day. All transmissions that are available in real time are also available in batch pull mode.

FIXML Schema Concepts

FIXML Schema is the data standard for the DDS system.

The OCC FIXML package includes many files. For all parsing and validation, start with the file **fixml-occ-4-4.xsd**. All other files that are used are included from this base file.

To read DDS FIXML messages, OCC recommends using an XML parser that adheres to the W3C[1] 1.0 and 1.1 XML recommendations and not the byte-by-byte method typically used for "flat file" parsing. In order to support new future business needs, OCC reserves the right to utilize previously unused tags, which are already part of the FIXML schema, to DDS FIXML messages. If the parsing mechanism recommended above is used, the addition of new tags will have no impact on the programs that read the DDS FIXML messages.

Following the XML standard, all DDS message elements and attributes must contain a value. For example, NULL and empty string values are not permitted.

The FIXML schema imposes an order to messages, but this order only applies to the component blocks included in the message. Firms should not expect tags within a DDS file to appear in a specific order. In addition, there is no sort order imposed on the data content of the message. For example, the SecurityList messages are not sorted by symbol or by any other tag. On a more general level, note that if a DDS recipient receives a batch file containing more than one message type (such as positions and trades), the batch file is not sorted by message type. Position messages and trade messages may be commingled throughout the file depending on how the particular file is built.

---

[1] The World Wide Web Consortium (W3C) is an international consortium where member organizations, a full-time staff, and the public work together to develop web standards.

FIXML and FIXML Extension Version Identification

FIXML versions are identified in the schema file names and with constant attribute values defined in the fixml-components-base schema file.

FIXML Schema File Versioning

FIXML Schema employs the file naming convention developed for FpML. The major and minor version numbers of the FIX version represented by the schema are appended to all FIXML schema file names. This approach assists users in recognizing when counterparties change their schema version.

FIXML Message Versioning

The FIXML root element <FIXML> contains five attributes that define the version of the message. The FIXML root element is defined in the fixml-components-base schema file.

Attribute Description and Format Example

Attribute	Description	Format	Example
v	FIX Version	N.N	4.4
r	FIX Version release date (used to designate errata releases between FIX versions)	YYYYMMDD	20030618
s	Schema Release (used to designate schema releases between errata releases)	YYYYMMDD	20040109
xv	FIXML Extensions Version	N.N	1
xr	FIXML Extensions Originator	String	FIA

```
<FIXML r="20030618" s="20040109" v="4.4" xr="FIA" xv="1"
xmlns="http://www.fixprotocol.org/FIXML-4-4">
  … Message …
</FIXML>
```

For On-Demand Positions, the following FIXML root element is used.

```
<FIXML r="20030618" s="20040109" v="4.4" xr="FIA" xv="1.1"
xmlns="http://www.fixprotocol.org/FIXML-4-4"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.fixprotocol.org/FIXML-4-4
https://www.theocc.com/getmedia/11f77dc2-98cf-4d31-898a-a95eb91abc9b/fixml-
main-4-4-FIA-1-1.xsd">
```

Comparing FIXML for Batch Files and Real Time Transmissions

Real time FIXML messages transmitted via MQ treat each message as a separate event. Therefore, each message transmitted via MQ includes the previously referenced FIXML tag.

Batch files pulled via SFTP follow a different process. A batch file includes an additional tag to communicate to the XML parser that multiple messages are contained in the file. An example of the tag used in batch files follows:

```
<FIXML r="20030618" s="20040109" v="4.4" xr="FIA" xv="1"
xmlns="http://www.fixprotocol.org/FIXML-4-4">
  <Batch>
    … Message …
    … Message …
    … Message …
  </Batch>
</FIXML>
```

FIX Concepts

The FIX protocol includes several concepts that are repeated in many of the message types. This section provides specific detail on these concepts.

CFI Code

The CFI Code field provides a standards-based source of security type values by using values defined in the ISO 10962 standard: Classification of Financial Instruments (CFI code). The CFI code appears in every transmission that contains the Instrument block, which contains product, series, and contract information.

A subset of ISO 10962 values applicable to FIX usage appears below. The official standard and set of possible values are maintained in the ISO 10962 standard. Any discrepancies below should be considered typographical errors. To obtain the ISO 10962 standard, please contact the ISO 10962 secretariat or visit the ISO website at https://www.iso.org/home.html.

The ISO 10962 standard defines a six-character CFI code in which each character's position value carries a special significance (attribute) and set of values. Note that "X" represents an unspecified or unknown attribute, thus it is not always necessary to specify every attribute (character position value).

Note: The corresponding FIX 4.2 SecurityType field value is identified within brackets [ ] in the list below.

The following is a high-level subset of possible values applicable to FIX usage:

EXXXXX = Equity Shares (various)
DXXXXX = Debt (various)
FXXXXX = Future [FUT]
MRCXXX = Misc., Referential Instrument, Currency [FOR]
MRIXXX = Misc., Referential Instrument, Index [n/a]
OCXXXX = Option - Call [OPT]
OPXXXX = Option - Put [OPT]

A detailed subset of possible values applicable to FIX usage appears below.

CFI Code Definitions for Options (code defined by character position)

Char 1 *Category*	Char 2 *Group*	Char 3 *Scheme*	Char 4 *Underlying Asset*	Char 5 *Delivery*	Char 6 *Standard/Non-Standard*
O=Options	**C**=Call **P**=Put **X**=Unknown (n/a)	**A**=American **E**=European **X**=Unknown (n/a)	**B**=Basket **S**=Stock-Equities **D**=Interest rate/notional debt sec **T**=Commodities **C**=Currencies **I**=Indices **O**=Options **F**=Futures **W**=Swaps **M**=Other **X**=Unknown (n/a)	**P**=Physical **C**=Cash **X**=Unknown (n/a)	**S**=Standard terms (maturity date, strike price, contract size) **N**=Non-standard terms **X**=Unknown (n/a)

The following table lists CFI code examples for options.

OCXXXS	Standard call option
OPXXXS	Standard put option
OCXFXS	Standard call option on a future
OPXFXS	Standard put option on a future
OCEFCN	Nonstandard call option on future with European style expiration and cash delivery
OPASPN	Nonstandard put option on stock with American style expiration and physical delivery
OCEICN	Nonstandard call option on an index with European style expiration and cash delivery

Non-Standard designation uses the OCC definition of this term: Non-Standard terms of settlement or multiple deliverables.

CFI Code Definitions for Futures (code defined by character position)

Char 1 *Category*	Char 2 *Group*	Char 3 *Underlying Asset*	Char 4 *Delivery*	Char 5 *Standard/Non-Standard*	Char 6 *N/A Undefined*
F=Futures	**F**=Financial Futures **C**=Commodity Futures **M**=Others **X**=Unknown (n/a)	**A**=Agriculture, forestry, and fishing **B**=Basket **S**=Stock-Equities (for financial future) or Services (for commodities futures) **D**=Interest rate/notional debt sec **C**=Currencies **I**=Indices (for financial futures) or Industrial Products (for commodities futures) **O**=Options **F**=Futures **W**=Swaps **M**=Other **X**=Unknown (n/a)	**P**=Physical **C**=Cash **X**=Unknown (n/a)	**S**=Standard terms (maturity date, strike price, contract size) **N**=Non-standard terms **X**=Unknown (n/a)	**X**=Not applicable / undefined

The following table lists CFI code examples for futures.

FXXXS	Standard future
FFICN	Nonstandard financial future on an index with cash delivery
FFSPSX	Standard future on an equity with physical delivery
FXXXN	Nonstandard future – contract type specified in symbology – not provided in CFI code

Non-Standard designation uses the OCC definition of this term: Non-Standard terms of settlement or multiple deliverables.

Market Identifier Code (MIC)

As of FIX 4.3, exchange codes used in FIX are those defined in the ISO 10383 standard: Market Identifier Code (MIC). A MIC value is used whenever exchange information is included in a message. The official standard and set of values are maintained by the ISO 10383 standard and any discrepancies below should be considered typographical errors. Always refer to the ISO 10383 standard for the correct set of values. As of the time of this publication the website link to view a current list of MIC values is: https://www.iso20022.org/market-identifier-codes

Note: Refer to the current ISO 10383 standard for the complete list. The following list is a subset of the complete list and is designed primarily to support exchanges that interact with OCC.
Each of the following exchange names and their related exchange acronyms are mapped to a MIC.

Exchange/MIC Mapping

Exchange Name	Exchange Acronym	MIC
BOX Exchange, LLC	BOX	XBOX
Cboe BZX Options Exchange	BATS	BATO
Cboe C2 Options Exchange	C2	C2OX
Cboe EDGX Options Exchange	EDGX	EDGO
Cboe Futures Exchange	CFE	XCBF
Cboe Options Exchange	CBOE	XCBO
MEMX LLC	MEMX	MXOP
MIAX Emerald, LLC	EMLD	EMLD
MIAX Options Exchange	MIAX	XMIO
MIAX PEARL, LLC	MPRL	MPRL
MIAX Sapphire, LLC	SPHR	SPHR
Nasdaq BX Options	NOBO	XBXO
Nasdaq GEMX	GEM	GMNI
Nasdaq ISE	ISE	XISX
Nasdaq MRX	MCRY	MCRY
Nasdaq Options Market	NSDQ	XNDQ
Nasdaq PHLX, LLC	PHLX	XPHO
NYSE American Options	AMEX	XASE
NYSE Arca Options	ARCA	XPSE
Small Exchange, Inc.	SML	SMFE

Party Component Block

The Party component block is used in all applicable messages to represent OCC account information. Below is a sample of how this block is used and the corresponding translations:

```
<Pty ID="OCC" R="21"/>              ➔ Clearing Group
<Pty ID="00352" R="4">              ➔ Clearing Member Number
     <Sub ID="M" R="26"/>           ➔ Account Type
</Pty>
<Pty ID="XYZ" R="38"/>              ➔ Account ID
```

Occasionally, additional information is listed in the Party component block when applicable. For example, in the Trade Capture Report for a CMTA trade, the give-up information is listed in the block. In this case, the block looks like the following example:

```
<Pty ID="OCC" R="21"/>              ➔ Clearing Group
<Pty ID="00551" R="4"/>             ➔ Clearing Member Number
     <Sub ID="M" R="26">            ➔ Account Type
</Pty>
<Pty ID="XYZ" R="38"/>              ➔ Account ID
<Pty ID="00792" R="14"/>            ➔ Give Up Clearing Firm
```

Instrument Component Block

The Instrument component block is used in all applicable messages to describe OCC cleared products. Below are samples of this block and the corresponding translations.

OPTION EXAMPLE
```
<Instrmt
     Sym="IBM"                  ➔ Product Symbol
     CFI="OCASPS"               ➔ CFI Code
     MMY="20220518"             ➔ Series/Contract Date
     MatDt="2022-05-18"         ➔ Expiration Date
     StrkPx="47.5"              ➔ Strike Price
     StrkCcy="USD"              ➔ Strike Currency
     StrkMult="1"               ➔ Strike Multiplier
     StrkValu="1"               ➔ Strike Value
     Mult="100"                 ➔ Contract Multiplier
/>
```

FUTURES EXAMPLE
```
<Instrmt
     Sym="VX"          ➔ Product Symbol
     ID=" VX"          ➔ Product Symbol
     Src="8"                    ➔ FIX enumeration for Exchange Symbol
     CFI="FFSPSX"               ➔ CFI Code
     MMY="20220518"             ➔ Series/Contract Date
     MatDt="2022-05-18"         ➔ Expiration Date
     Mult="100"                 ➔ Contract Multiplier
/>
```

In some messages, such as the Security Definition Report and Security Update Report, additional fields are included in the Instrument block to further describe the option or futures product.

The StrkMult and Mult fields are provided in the Instrument component block because they are often used by OCC to calculate settlement values and moneyness values.

FIXML Data Types (as used by OCC)

FIX Data Type	FIX Definition	OCC Definition	Example
Integer	Sequence of digits without commas or decimals and optional sign character. Integer values may contain leading zeros.	Leading zeros are removed.	723
Float	Sequence of digits with optional decimal point and sign character. Float values may contain leading and trailing zeros.	Leading and trailing zeros are removed. The number of decimal points is limited to six.	245.3967
Qty	Float field capable of storing either a whole number of "shares" or a decimal value containing decimal places for non-share quantity asset classes	Whole numbers only	25
Price	Float field representing a price. The number of decimal places can vary, and prices may be negative values.	The number of decimal places is limited to six.	3.12
Amt	Float field typically representing a Price times a Qty.	The number of decimal places is limited to six.	392785.23
Percentage	Float field typically representing a percentage. The number of decimal places can vary.	The number of decimal places is limited to six.	0.95
Char	Single character value that can include any alphanumeric character or punctuation except the delimiter. All character fields are case sensitive.		Y
String	Alpha-numeric free format strings that can include any character or punctuation except the space delimiter. All character fields are case sensitive.		GUI

FIX Data Type	FIX Definition	OCC Definition	Example
MultipleValue String	Alpha-numeric free format strings that can include any character or punctuation. Can contain one or more space-delimited values. All character fields are case sensitive.		Q W X
Currency	String field representing a currency type using ISO 4217 Currency code values.	Three-character Currency code is used	USD
Exchange	String field representing a market or exchange using ISO 10383 Market Identifier Code (MIC).	Four-character MIC is used	XASE
Month-Year	String field representing a month of a year. An optional day of the month can be appended or an optional week code. Valid formats: YYYYMM, YYYYMMDD, YYYYMMWW	Only valid format is YYYYMMDD	20220518
UTCTimestamp	Time/date combination represented by local time and its offset from UTC (also known as GMT). The format is YYYY-MM-DDThh:mm:ss-hh:mm	Only valid format is YYYY-MM-DDThh:mm:ss-hh:mm	2022-05-18T03:45:23-05:00
UTCTimeOnly	Time-only represented in UTC (also known as GMT) is HH:MM:SS-hh:mm	Only valid format is HH:MM:SS-hh:mm	03:45:23-05:00
UTCDateOnly	Date represented in UTC (also known as GMT) in YYYY-MM-DD format		2022-05-18
LocalMktDate	Date of local market (vs. UTC) in YYYY-MM-DD format. This is the "normal" date field used by the FIX protocol.		2022-05-18

UTC Timestamp

All FIX reports that include transaction times, creation times, update times, and so on, are reported in a time/date combination that includes local time and the offset from UTC (Coordinated Universal Time, also known as GMT). The UTC Timestamp is represented by the format YYYY-MM-DDThh:mm:ss-hh:mm. To indicate the time zone (the difference between the local time and UTC) the time is immediately followed by a plus or minus sign (+ or -) followed by the difference from UTC represented as hh:mm. Adjustments are made for Daylight Savings Time.

For example:

To indicate 3:45:23 am on May 18, 2022 for Eastern Standard Time which is five (5) hours behind Coordinated Universal Time (UTC), the timestamp is:

2022-05-18T03:45:23-05:00.

Empty Values

Any attributes which are omitted from a FIXML message should be considered empty or as having no value. The example FIXML message below illustrates this concept an option instrument:

```
<Instrmt
    Sym="IBM"              ➜ Product Symbol
    CFI="OCASPS"           ➜ CFI Code
    MMY="20220518"         ➜ Series/Contract Date
    MatDt="2022-05-18"     ➜ Expiration Date
    StrkPx="47.5"          ➜ Strike Price (Decimal format)
    StrkCcy="USD"          ➜ Strike Currency
    StrkMult="1.0"         ➜ Strike Multiplier
    Mult="100"             ➜ Contract Multiplier
/>
```

Futures instruments have no Strike attributes. Therefore, whenever possible the attributes are omitted and should be considered to have no value.

```
<Instrmt
    Sym="IBM1C"            ➜ Product Symbol
    CFI="FFSPSX"           ➜ CFI Code
    MMY="20220518"         ➜ Series/Contract Date
    MatDt="2022-0518"      ➜ Expiration Date
    Mult="100"             ➜ Contract Multiplier
/>
```

FIX Reference Materials

Information on the current FIX 4.4 specification can be found at:

FIX 4.4 Specification - FIX Trading Community

OCC DDS guides include FIX tag numbers in the message layout tables for ease of reference to FIX documentation. This data is not included or referenced in the FIXML schema provided by OCC.

The OCC DDS Reference guides are available at https://www.theocc.com/Clearance-and-Settlement/Data-Distribution-Service-Reference.

Appendix

Revision History

Version	Date	Version Updates
1.10	6/30/2014	Removed references to NYL. Added Revision History. Updated Cover Page logo.
1.11	9/2/2015	Added EDGX to exchange list.
1.12	12/15/2015	Added MCRY to exchange list.
1.13	12/6/2016	Added MPRL to exchange list.
1.14	1/26/2017	Changed http://optionsclearing.com URL to https://www.theocc.com.
1.15	8/24/2018	• Applied rebranding updates. • Removed ELX exchange.
1.16	11/12/2018	Added EMLD to exchange list.
1.17	8/30/2019	Added SML to exchange list
1.18	6/28/2020	• Revised the www.TheOCC.com website URLs for FIXML schema to reflect new website organization. • Removed NFX from exchange list.
1.19	9/23/2020	• Removed ONE from exchange list.
2.0	9/30/2021	• Removed references to batch push transmissions using Connect:Direct (NDM). • Added minor updates for clarity.
2.1	6/1/2023	• Added MEMX to exchange list. • Corrected link to FIXML website. • Minor updates for clarity.
2.2	2/1/2024	• Added MIAX Sapphire exchange.